SALMONELLOSIS: WILL IT POSE A PROBLEM FOR IGUANA HUSBANDRY?

BY GREGORY Z. SCOTT

On 21 December 1991, I picked up two three-year-old female Rhinoceros iguanas, *Cyclura cornuta* at the Miami International Airport. They were captive-bred animals raised by Terry Gentry in Mt. Laurel, New Jersey. Terry sent them down for boarding and possible breeding purposes. The next leg of the trip was a three hour car drive to my home in Big Pine Key, Florida. Within thirty minutes of arriving home, Bob Ehrig of Finca Cyclura came over to examine the animals and choose which of the two he would house. Both animals were in apparent exquisite condition.

The female I would board was placed in a habitat cage. Dimensions of the habitat cage are: floor area = 7 square meters (76 square feet); height = 3.04 meters (10 feet). She would share these quarters with a trio of *Cyclura cornuta*, one adult male, a three-year-old female, and a four-year-old female. The new female was accepted by the group with no hostility ever noticed, however, the new arrival was quite belligerent towards me. To give reference to her behavior, I could no longer enter the cage in shorts and flip-flops. On one occasion she jumped approximately one meter and grabbed my pant leg at the knee with her mouth and had to be physically pulled free. From the day after her arrival to the day she died, she ate, basked with the other rhinos and even shared the same den at night.

On 28 January, 1992, she was her usual aggressive self at feeding time, and she was looking fine when I did my noon checks of all the cages. Shortly after 5:00 p.m., however, I found her in a very lethargic state. Her only response was to open her mouth when I picked her up. On closer examination I noticed her eyes were partially sunken with fully dilated pupils, no movement in any limbs, and shallow breathing.

I immediately brought her into the house and treated her for dehydration by feeding a mixture of romaine, banana and carambolla liquified in a blender with water. She swallowed five teaspoons of the mixture and within ten minutes regurgitated. I repeated the procedure with the same results. After that I placed her in a large dog carrier with a heating pad. She died that night between 7:00 p.m. and 7:30 p.m.

On 29 January 1992, I took her to Cruz Animal Clinic, Ramrod Key, Florida, for a necropsy and histopathology exam. Blood smears revealed high levels of bacteria commonly found in cases of acute septicemia which was the cause of death. Upon examination of the internal organs Dr. Rene Cruz found the liver to be seriously damaged with yellow granular necrotic tissue. For lack of a name to describe the condition, Dr. Cruz named it pyrogranuloma. A section of liver with a granuloma was placed in 10% formalin and sent to the State Diagnostic Lab in Kissimmee, Florida, to determine the possible causative agent. A sensitivity culture was started using a swab of the cloaca. Palpation of the intestines showed they were full of gas. There are only three types of bacteria that produce septicemia in reptiles: *Pseudomonas, Aeromonas*, and *Salmonella* (Wallach and Boever, 1983). They are all rod shaped, gram-negative, motile bacteria. Dr. Cruz suspects *Salmonella* as the causative agent in this death after close comparison of the blood smears with examples in the text. The text also listed "enteritis, septicemia, and necrotic foci in the liver" as results of *Salmonella* infections. Several antibiotics have been used for treatment of *Salmonella* with limited success (Wallach and Boever, 1983).

Salmonella bacteria (named for Dr. Salmon) are gram-negative, non-endospore forming, motile rods. They ferment glucose, producing acid and gas with an incubation period from twelve hours to two weeks and the normal habitat is the intestinal tracts of animals and humans. To date, seventeen strains have been identified (Tortora et al. 1982). *Salmonella* infections are often subclinical in reptiles and become clinical when there is some degree of stress in the reptile (Wallach and Boever, 1983).

By the time clinical signs are noticed, death usually follows within hours. Septicemia is probably the cause of sudden unexplained death in otherwise healthy looking animals. The change from small indoor housing to a large outdoor habitat cage could have been the stress factor involved in this case.

I was informed of two cases of children contracting salmonellosis from handling iguanas that were documented by the Centers for Disease Control (CDC), Atlanta, Georgia. To avoid problems with pathogenic bacteria, we should practice good hygiene and keep relative humidity down (Fowler, 1986). After handling iguanas or working with their cages, be sure to wash your hands thoroughly with warm water and soap. Any scratches or bites from your animals should also be washed and disinfected. Such precautions are well advised because salmonellosis in humans is an unpleasant experience and difficult to treat.

Literature Cited

Fowler, M.E. editor. 1986. Zoo and Wild Animal Medicine, 2nd edition. W.B. Saunders Co.

Tortora, G.J., B.R. Funke and C.L. Case. 1982. Microbiology: An Introduction. Benjamin/Cummings Publishing Co., Inc.

Wallach, J.D., DVM and W.J. Boever, DVM 1983. Diseases of Exotic Animals-Medical and Surgical Management. W.B. Saunders Co.

Address: Gregory Z. Scott, Rt. 1, Box 587 G, Big Pine Key, FL 33043

Young female Rhino Iguana, *Cyclura cornuta*, in captivity in the Florida Keys. *Photography: R. Ehrig*